

We claim:

1. A wireless communication network configured to provide low latency services to mobile wireless devices, the wireless communication network comprising:

5           a transport network comprising:

                  a signaling network configured to transport call signaling; and

                  a bearer network configured to transport bearer traffic,

                  wherein a special connection on the bearer network is established and

                  at least a portion of the capacity of the special connection is reserved for

10           transporting call signaling;

                  a base station system connected to the transport network, the base station system, responsive to receiving call signaling from a mobile wireless device, determines if the call signaling is for a low latency service, forwards the call signaling over the special connection on the bearer network if the call signaling is for a low latency service, and forwards the call  
15           signaling over the signaling network if the call signaling is not for a low latency service;  
                  and

                  a switching system connected to the transport network, the switching system, responsive to receiving the call signaling over the special connection on the bearer network or the signaling network, forwards the call signaling over a packet data network.

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2. The wireless communication network of claim 1, wherein:

                  the switching system, responsive to receiving call signaling from the packet data network, determines if the call signaling is for a low latency service, forwards the call signaling over the special connection on the bearer network if the call signaling is for a low  
25           latency service, and forwards the call signaling over the signaling network if the call signaling is not for a low latency service.

3. The wireless communication network of claim 1 wherein the low latency service comprises a Push to Call service.

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4. The wireless communication network of claim 1 wherein the special connection also transports bearer traffic in addition to call signaling.

5. The wireless communication network of claim 4 further comprising:  
a control system that controls the amount of bearer traffic allowed on the special connection to help ensure latency on the special connection.

- 5 6. The wireless communication network of claim 1 wherein:  
the special connection comprises a T-1 line; and  
the portion of the capacity of the special connection reserved for transporting call  
signaling comprises at least a fractional of a DS0; or  
the special connection comprises a fiber facility; and  
10 the portion of the capacity of the special connection reserved for transporting call  
signaling comprises at least a fractional of the bandwidth of the fiber facility.

7. A method of operating a wireless communication network configured to provide low latency services to mobile wireless devices, the wireless communication network comprising a transport network, a base station system, and a switching system, the transport network comprising a signaling network configured to transport call signaling and a bearer network configured to transport bearer traffic, the method comprising the steps of:

establishing a special connection on the bearer network;  
reserving at least a portion of the capacity on the special connection for transporting call signaling;

in response to receiving call signaling in the base station system from a mobile wireless device,

determining if the call signaling received by the base station system is for a low latency service,

forwarding the call signaling over the special connection on the bearer network if the call signaling is for a low latency service, and

forwarding the call signaling over the signaling network if the call signaling is not for a low latency service; and

in response to receiving the call signaling in the switching system over the special connection or the signaling network, forwarding the call signaling over a packet data network.

8. The method of claim 7, wherein in response to receiving call signaling from the packet data network into the switching system, the method further comprises the steps of:

determining if the call signaling received by the switching system is for a low latency service,

forwarding the call signaling over the special connection on the bearer network if the call signaling is for a low latency service, and

forwarding the call signaling over the signaling network if the call signaling is not for a low latency service.

9. The method of claim 7 wherein the low latency service comprises a Push to Call service.

10. The method of claim 7 further comprising the step of:

transporting bearer traffic over the special connection in addition to call signaling.

11. The method of claim 10 further comprising the step of:

controlling the amount of bearer traffic allowed on the special connection to help ensure latency on the special connection.

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12. The method of claim 7 wherein the special connection comprises a T-1 line and the portion of the capacity of the special connection reserved for transporting call signaling comprises at least a fractional of a DS0.

10 13. The method of claim 7 wherein the special connection comprises a fiber facility and the portion of the capacity of the special connection reserved for transporting call signaling comprises at least a fractional of the bandwidth of the fiber facility.

14. A method of operating a wireless communication network configured to provide low latency services to mobile wireless devices, the wireless communication network comprising a transport network, a base station system, and a switching system, the transport network comprising a signaling network configured to transport call signaling and a bearer network configured to transport bearer traffic, the method comprising the steps of:

15 establishing a special connection on the bearer network;  
20 reserving at least a portion of the capacity on the special connection for transporting call signaling;  
in response to receiving call signaling in the switching system from a packet data network,

25 determining if the call signaling received by the switching system is for a low latency service,

forwarding the call signaling over the special connection on the bearer network if the call signaling is for a low latency service, and

forwarding the call signaling over the signaling network if the call signaling is not for a low latency service; and

30 in response to receiving the call signaling in the base station system over the special connection or the signaling network, forwarding the call signaling to a mobile wireless device.

15. The method of claim 14, wherein in response to receiving call signaling from the mobile wireless device into the base station system, the method further comprises the steps of:

determining if the call signaling received by the base station system is for a low latency service,

forwarding the call signaling over the special connection on the bearer network if the call signaling is for a low latency service, and

forwarding the call signaling over the signaling network if the call signaling is not for a low latency service.

16. The method of claim 14 wherein the low latency service comprises a Push to Call service.

17. The method of claim 14 further comprising the step of:

transporting bearer traffic over the special connection in addition to call signaling.

18. The method of claim 17 further comprising the step of:

controlling the amount of bearer traffic allowed on the special connection to help ensure latency on the special connection.

19. The method of claim 14 wherein the special connection comprises a T-1 line and the portion of the capacity of the special connection reserved for transporting call signaling comprises at least a fractional of a DS0.

20. The method of claim 14 wherein the special connection comprises a fiber facility and the portion of the capacity of the special connection reserved for transporting call signaling comprises at least a fractional of the bandwidth of the fiber facility.